11-1-2008

Update Newsletter November 2008

Department of Forestry, Wildlife and Fisheries

UT Extension

FWF Update Newsletter

Department of Forestry, Wildlife and Fisheries *November 2008*

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IN THIS ISSUE

Hardwood Analysis and Trends (HAT) – November 2008

David Mercker, Extension Specialist, Forest Management

It is with some trepidation that this updated version of **HAT** is submitted. Times are very trying for the hardwood industry. Even with production cut-backs at region sawmills, lumber inventory continues to swell. Secondary wood products manufacturing at both domestic and international levels is curtailed. Reasons vary, and include lack of consumer confidence, tighter credit markets, and slower home construction.

With these conditions comes certain volatility in lumber prices. Since April of this year, the value of black walnut and black cherry #1 common lumber has fallen considerably, red oak, white oak and sugar maple has fallen moderately, and poplar has risen slightly. A general observation can be made regarding price trends in robust vs. challenging markets: when the economy is strong, lumber pricing of the above six species diverges; when the economy is weak, lumber pricing of the same species tend to converge. Challenging markets often leads to substituting lower value lumber for higher value. Most disturbing in recent weeks is that markets for white oak have changed considerably, particularly in the higher grades, largely lead by drying up of international demand.

It is a wait-and-see mode. The economic stimuli will eventually take effect, bankers will return being bankers (lenders of money), and consumers will consume. All the while, trees will grow and continue to supply the renewable environmental and economic benefits in which we all rely. For additional information regarding hardwood markets in Tennessee, see the Tennessee Forest Products Bulletin at: http://www.state.tn.us/agriculture/forestry/marketing.html

Wildlife Management Calendar for December

Craig Harper, Professor, Wildlife Management

Habitat Management

Do **not** mow (bushhog) old-fields if you have any interest in wildlife
- mowing at this time destroys much needed winter cover
- mowing accumulates thatch, limits mobility, and suppresses the seedbank
- wait until late March/early April and burn and/or disk the field
- if you just can't burn or disk, at least wait until early April (just prior to nesting seasons) before mowing

Disk strips in old-fields for brood habitat
- will stimulate forb growth next spring
- will reduce grass dominance where native grasses have become too dense
- will reduce woody encroachment by sweetgum, elms, and other undesirable woody saplings in the field

Disk firebreaks around fields and woods (if it's not too wet) before the ground freezes
- disking now will stimulate forbs next spring and will enable you to burn when conditions are good

Native warm-season grasses can be planted during the dormant season
- don't plant too deep – no more than ¼ inch!
- don't forget preemergence weed control next April/May; it is critical!
- refer to **Chapter 5** of *Native Warm-Season Grasses: Identification, Establishment, and Management for Wildlife and Forage Production in the Mid-South*, PB 1752 for additional information

Continue to strip-mow or silage chop dove fields to provide seed and hunting opportunities
- don't mow it all – leave some for January/February
- strips can be disked and top-sown with winter wheat (2 bushels per acre) to provide additional forage opportunities
- migrating doves appreciate your efforts and the late dove seasons can offer great shooting

Spray perennial forage food plots for weed control if necessary
- refer to *A Guide to Successful Food Plots: Blending Science with Common Sense*, PB 1769, for specific information

Fertilize winter forage plots containing oats, wheat, and/or cereal rye
- 30 pounds of N per acre

Soil test now for spring plots
- applications of lime require about 6 months before full effect on pH is realized

Plant trees/shrubs for wildlife
- establish hedgerows across fields with soft-mast bearing trees and shrubs
- hedgerows can be used to break up fields into sections
- also plant trees/shrubs in blocks at end of fields or in "odd" areas
- crabapple, wild plum, sumac, and elderberry and others are good choices
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for a list of other trees and shrubs to consider

Fertilize/prune trees/shrubs for increased soft mast production
- this is for trees out in the open, not those in woods
- fertilizing oaks in woods is a waste of time and money; to increase mast potential for trees in the woods, refer to TSI activities

Continue Timber Stand Improvement (TSI) activities
- stimulate growth among oaks, beech, cherry, persimmon, and other mast producers by killing surrounding competitors
- girdle unwanted trees and spray wound with a mixture of Garlon and Arsenal AC
- use 2 quarts Garlon 3A and 25 ounces Arsenal AC filled to 1 gallon of water

Build brushpiles from thinned trees and pruned limbs
- put large limbs on bottom and small limbs on top for crevice space and overhead protection
- effect is greatest along edges of fields of native grasses and forbs where quality cover already exists

Erect boxes for wood ducks and bluebirds
- 1 box per 100 yards of shoreline is adequate for wood ducks
- clean out old wood duck boxes and put in fresh wood shavings (about 4 – 6 inches)
- screech owls and squirrels may use the boxes through winter
- repair/install predator shields if necessary
- bluebird boxes should be no closer than 80 yards apart
- up to 9 or more bluebirds may roost in a single box on cold nights

Put out bird feeders and keep them full
- refer to *Improving Your Backyard Wildlife Habitat*, PB 1633, for information on specific feeders and seed for birds

Flood waterfowl impoundments
- a depth of 8 – 12 inches is ideal for dabbling ducks
- Duck numbers should be rising – watch the weather!

Wildlife Damage/Population Management

Close crawl spaces under the house and check for openings in the attic
- help keep snakes, skunks, and squirrels from getting into places where they are not welcome
- rodents are caching food for the rest of winter; take action now to keep them out of your house
- glueboards are very effective in trapping mice, snakes, and lizards looking for a warm place inside your basement or garage

Blackbirds and starlings have gathered into large winter flocks
- don't allow them to roost in your trees; if they start, they'll form a habit
- repel them with noise makers (shotguns, firecrackers, banging metal pans together)
- be persistent
- refer to *Managing Nuisance Animals and Associated Damage Around the Home*, PB 1624 for additional information on wildlife damage management.

Do We Have Enough Trees?

Adam Taylor, Assistant Professor, Forest Products

A recent article[1] caught my attention with this one statistic: There are 61 trees for each person on earth. Of course this is only a rough guess, based on satellite imagery of forest cover and estimates of the world's population; however, at first glance it seems like a reassuringly large number. But it begs the question: Is 61 trees per person enough?

Not surprisingly, there is no simple answer. For one thing, "enough" depends on what you want the trees for. If the value is in their beauty, then it would be difficult to come up with a good number. However, if the concern is about the number of trees needed to sustainably supply wood, then the following items merit consideration:

We use a lot of wood, for many things. A report from the United Nations FAO [2] states that global consumption of wood for fuel and products was about 3.4 billion cubic meters in 2000, which works out to about 0.6 cubic meters per person per year.

There is a lot of wood in the world. The same FAO report calculates that there are about 380 billion cubic meters of wood in our forests, which works out to about 60 cubic meters per person. So, in very rough numbers, we are using about 1% of our global wood stock per year.

Trees grow. Putting a number to this is tricky, given that it depends on tree species, location, age, management intensity and many other factors. However, a 3% grow rate of trees in a forest is a reasonable estimate for many situations.

Deforestation is taking place. The FAO reports that the global forest area decreased by 0.2% per year from 1990-2000. Deforestation patterns vary a lot by location: the Amazon Basin in Brazil, the Congo Basin in Africa and parts of Indonesia are experiencing major losses of forest; Europe and North America are increasing in forest area. Deforestation is caused mostly by land conversion to agriculture and development – not the harvest of wood – but among the many problems caused by deforestation is the reduced area available to supply the global need for forest products.

Our population in increasing. The number of people on earth is expected to increase 50% by the middle of the century.[3] This will likely increase the need for wood products and will intensify the conversion pressures on forest land.

With the above data we can't determine if we have enough trees. Global averages don't indicate the local situations of supply and demand. Uncertainties about population growth, wood use patterns, deforestation, climate change and other factors make predicting the future impossible. However, wood is a renewable and versatile product of our vast, global forest resource. Do we have enough trees? Maybe!

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[1] http://www.npr.org/templates/story/story.php?storyid=96758439
[2] ftp://ftp.fao.org/docrep/fao/007/y5574e14.pdf
[3] http://en.wikipedia.org/wiki/World_populations_estimates

Wood Decay in Hardwoods

Wayne K. Clatterbuck, Professor, Forest Management and Silviculture

Wood decay is often present in hardwoods, especially trees that have been injured by fire, logging or climatic events. Diseases causing wood decay are often visible in exposed decayed and rotten wood and from conks and other fruiting bodies produced by pathogens on decaying or rotting stems and branches. Monetary losses to wood decay can be significant. In addition, trees with advanced decay represent aesthetic and safety liabilities from branch or stem breakage. Decay is introduced to trees by means of ...

> Fire scars
> Broken limbs
> Insect entry
> Logging wounds
> Trampling by livestock

Infections occur when spores, aerially disseminated from conks and other decay fungi or transported by insects, are deposited on or near wounds, fire scars, or dead branch stubs. Moisture and temperature conditions permit the spores to germinate and the fungi grow slowly into the wood tissues. Some fungi produce heart rot, invading the physiologically inactive (non-living) heartwood, while others typically decay the outer layers of weakened or dead sapwood. Heart rot fungi are common on older mature trees, while the sapwood rotting fungi are found on most any size or age tree. Following sufficient infection of the wood, the decay fungi eventually produce fruiting bodies and conks. Polyporous spp. and Fomes spp. are two of the most common wood decaying fungi.

Rarely do wood decay fungi invade healthy, uninjured wood tissues. Young trees usually have less decay than old trees and are better able to resist decay once it is introduced. Healthy, vigorous growing trees compartmentalize decay in wood tissues, not allowing the decay mechanism to spread within the remainder of the tree. Wounds, depending on size, tend to callus over and close, compartmentalizing the infection.

No effective or practical control measures exist for treatment of existing heart rot or decay. Prevention of decay by avoiding injuries to tree is the most effective method of minimizing damage. To prevent and minimize decay

> Prevent fires and reduce the amount of fuels present in the stand
> Thin young stands to reduce breakage of spindly trees during storms and to strengthen trees against insect attack
> Maintain a diverse forest, which is more resistant to insect and disease outbreak
> Harvest mature trees before losses to decay exceed growth
> Cut low stumps during harvesting operations
> Remove trees with signs of decay or with major injuries
> Use “bumper trees” along skid trails to absorb the impact of logs being dragged. Remove bumper trees when closing the harvest
> Exclude livestock from the woods
> Harvest and regenerate mature forests with a large proportion (40 percent or so) of trees showing decay symptoms.
> Perform timber stand improvement in young stands

Sources: Florida Dept. of Agriculture, Division of Forestry
Tennessee Dept. of Agriculture, Division of Forestry

Categorizing Hardwood Trees by Their Monetary Value

David Mercker, Extension Specialist, Forest Management

In short, every tree has value, some with monetary value - but all have aesthetic, wildlife, ecosystem or other intrinsic value measurable only by the observer. Forest management attempts to take all these values into consideration, with monetary value often of interest among forest landowners. Monetary value becomes increasingly difficult to quantify with hardwood forests given the richness of trees present throughout the region. Most hardwood forests have 20 or more unique species of trees.

This article is written to help summarize the monetary value of selected species for their wood product usage. With this, trees are placed into **very high, high, medium and low** value groups. Readers should note that some species fluctuate between high and medium, or medium and low depending on market demand, consumer preference, producer supply, and regional differences. For instance, even though black cherry has enjoyed a high market value in the northeastern states, its quality and resulting market value throughout the South is much less. Also, niche markets (often short-lived) can exist that allow for high prices to be offered for species that normally have low value. The following list is very general, but can help landowners, foresters and educators with silvicultural decisions when managing forests to produce favorable incomes by managing for high "value" species.

Traditionally **Very High** Market Value
Black walnut (lumber and veneer trees)
Oak veneer

Traditionally **High** Market Value
Red oaks (most)
White oaks (most)
Black cherry
Sugar maple

Traditionally **Medium** Market Value

Ash	Baldcypress
Yellow poplar	Hickory
Soft maple	Red cedar
Sassafras	Basswood

Traditionally **Low** Market Value

Cottonwood	Sycamore	Buckeye
Sweetgum	Blackgum	Mulberry
Elm(s)	Hackberry	Locust
Willow	Boxelder	Hackberry
Beech	Birch	Tree-of-Heaven
Sourwood		

High Cost of High-Grading

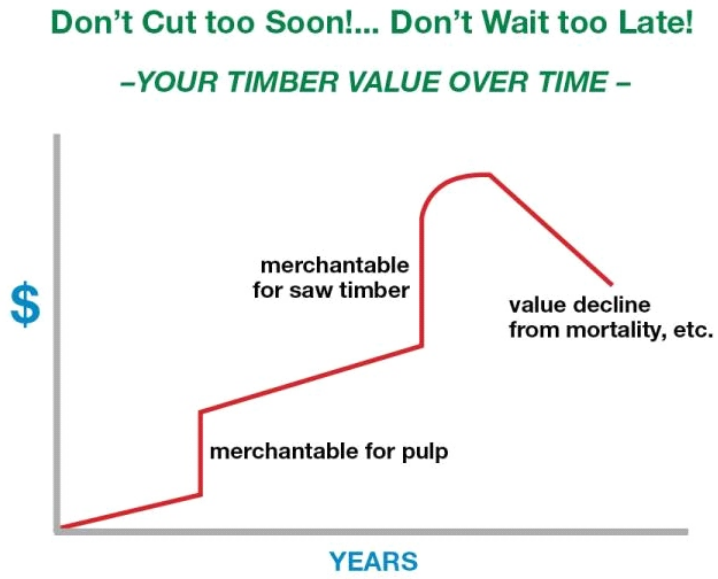
Larry Tankersley, Extension Forester

High-grading aka, select cutting, and/or diameter-limit cutting is a common method of removing timber. Typically it involves removing the best trees in an area and leaving the rest. The best trees are large and defect free individuals of a high-valued species. The rest are typically the same age as the larger trees but slower growing, poorly formed and undesirable species.

While immediate cash flow may be large sums, characteristics of the residual stand may be such that future timber harvests will be less valuable. With no consideration or provision for the next "crop" of trees, a timber stand can effectively be "out of business".

High-grading can be "mining" and is often not sustainable in terms of a continuous supply of quality sawtimber. Certain species especially oaks on relatively good sites are often replaced by maples and beech which are lower in value when they do reach merchantable size. Smaller, lower grade trees often never grow into quality trees.

Its important to recognize that as trees grow they move into more valuable product classes. Cutting trees too soon misses that future value. Also cutting too soon may forgo opportunities to naturally regenerate the area to desirable species for the future. Restoration will cost money and time.



The graph shows a generic trajectory for merchantable timber values as time passes and the trees grow. Early on the forest has limited merchantable value. The first vertical "jump" shown is when the stand of trees becomes merchantable for "roundwood" production. At this stage of forest development, the tree diameters have become large enough (roughly averaging 6 inches at 4.5 feet above ground) to be processed with conventional logging equipment. These trees are typically used for making paper. Modest value but merchantable.

As time passes, the average diameter of the trees becomes greater that 12 inches and thus can be sawn into lumber. This move from smaller to larger diameters dramatically increases the value of the trees, thus the second "jump" on the graph. As trees become larger than the minimum diameter for sawtimber their value continues to increase as they improve in grade. Most trees do not rate a top grade until the diameter is greater than 14-15 inches at breast height.

It is important to note that cutting the trees "early" will preclude the opportunity to cut when the area has reached it's maximum value. This lost opportunity can be considered the cost of high-grading or cutting too soon. Likewise, forest owners should note the down turn on the trajectory after the trees have reached maximum value. This denotes the fact that older forests often lose value as the trees begin to decline due to wind, insects, fungi, drought or just old age. If you plan to harvest timber at some point it's best not wait too late.

Be sure to contact us if we can explain this information.

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